



## Cowpens National Battlefield Water Quality Summary Fiscal Year 2009

### Water quality at Cowpens National Battlefield Park remains good



Long Branch Island Creek, February 24, 2010 . Image by Shepard McAninch.

### Highlights of Fiscal Year 2009 Monitoring

Water quality at Cowpens National Battlefield (COWP) during fiscal year 2009 (October 2008 through September 2009) was no different than elsewhere throughout the lower Blue Ridge and Piedmont – showing signs of a prolonged regional drought. While streams were reduced to trickles, flow-dependent parameters such as dissolved oxygen (DO) were largely unaffected. This may be a coincidence of low flows during cooler winter months when oxygen is easily dissolved in the water. DO of Long Branch of Island Creek was reported 2.27 milligrams per liter (mg/l) in November 2008, nearly 2 mg/l below the state standard. This was a temporary condition as the extreme drought flow was combined with a heavy load of decaying leaves.

*Escherichia coli* (*E. coli*) values exceeded USEPA recommendations at Suck Creek #2 on two of the four sampling rounds, November 2008 and May 2009. Values exceeded the 2416.9 most Probable Number per 100 milliliter (MPN/100ml) upper limit of the test. Both times flow in Suck Creek #2 was low, 0.5 liters per second (l/s) and 2.6 l/s respectively. As the Suck Creek #2 watershed is fully within the Battlefield largely wooded and with exception of a small portion of the Loop Road, devoid of development, wildlife is the likely source of bacterial contamination.

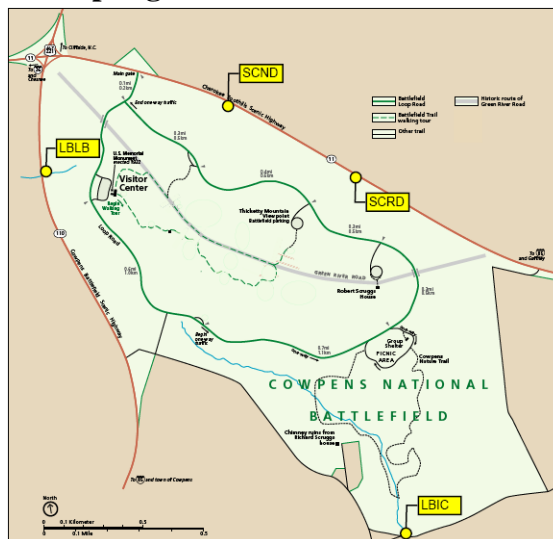
Streams of COWP have low acid neutralizing capacity and naturally low pH. COWP streams typically hover near the lower pH limit of 6.0 Standard Units (SU). These are not considered violations of the state standards as they reflect natural conditions.

### Water Quality Standards

All COWP waters are considered “South Carolina Outstanding Resource Waters” which prohibit discharge and other pollution sources, while criteria are defined as “South Carolina Fresh Water”, a combination of the highest standards under the Clean Water Act as promulgated by the state. South Carolina currently does not impose a standard for *Escherichia coli* bacteria so we have adapted the USEPA recommendations for “Single Sample Infrequently Used Full Contact Recreation.” We use the most tolerant of federal recommendations reflecting the lack of recreational use of COWP waters, 576 MPN/100ml. Other monitored parameters, ANC and Specific Conductance (SpC), are without state standards or federal guidelines. These parameters are useful in interpreting water quality.

<b>Water Temperature</b>	Not to exceed 32.2°C
<b>Dissolved Oxygen</b>	Not to exceed 4.0 mg/l
<b>pH</b>	Between 6.0 and 8.5 SU
<b><i>Escherichia coli</i></b>	Not to exceed 576 MPN/100ml
<b>SpC</b>	No Standard
<b>ANC</b>	No Standard

### Sampling Sites



<b>SCND</b>	Suck Creek #2
<b>SCRD</b>	Suck Creek #3
<b>LBIC</b>	Long Branch of Island Creek
<b>LBLB</b>	Little Buck Creek

### Future Monitoring

Water quality sampling is scheduled to resume in fiscal year 2011.

Water quality data are available upon request to the Cumberland Piedmont Network or our website:

<http://science.nature.nps.gov/im/units/cupn/reports.cfm>